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NOISE IMPACT ASSESSMENT REPORT

Lunces Hill, Haywards Heath
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EXECUTIVE SUMMARY

RPS has prepared this noise impact assessment report to accompany the planning application for the proposed development at Land east of Lunce's Hill, Haywards Heath. The proposed development comprises residential dwellings and associated infrastructure, and is described as;

> *'Outline planning application for the erection of up to 130 dwellings, together with the change of use of an existing barn for flexible community or commercial use, along with associated outdoor space and landscaping, drainage infrastructure, hard and soft landscaping, parking, access and associated works (all matters reserved except for access).*'

The site sits partially within the boundary of Lewes District and partially in Mid Sussex District.

The assessment is based on the results of a noise survey carried out in September 2024 and has been undertaken in line with current planning policy and technical guidance.

Our site observations, and the results of the baseline survey, have identified that the dominant source of noise affecting the proposed development site is vehicular movement on Lunce's Hill.

The majority of the proposed development is expected to achieve the internal and external guideline noise levels with no mitigation in place. Only those dwellings closest to and facing Lunce's Hill are expected to require some limited mitigation.

For the dwellings located closest to Lunce's Hill, external amenity areas will be protected by locating garden areas on the screened side of the proposed dwellings, facing away from the road.

A 60 m standoff between Lunce's Hill and the closest proposed dwellings will provide some natural noise attenuation for the proposed development. With this in place, internal noise guideline levels, during the day and night-time, can be achieved at properties closest to the road using standard thermal glazing together with an alternative means of ventilation, so that windows can remain closed when the occupant so chooses.

Sensitive rooms located on the screened facades of those dwellings and on all facades of dwellings further into the proposed development are likely to achieve the internal guideline noise levels even with the windows open.

An assessment of the overheating risk at the site has been carried out, and shows that the proposed development site is at a low risk of experiencing overheating.

The proposed use of the barn (Use Class E/F2) will not produce significant noise emissions, and will be compatible within a residential context.

Therefore, with the proposed mitigation scheme implemented, noise at the proposed development site is below LOAEL as defined in PPG-Noise. Subsequently, noise should not be a reason not to grant planning approval for the proposed development.

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1 INTRODUCTION

1.1 Lunce's Hill, Haywards Heath

1.1.1 The RPS Acoustics Team (RPS) has been commissioned by Catesby Strategic Land Limited and Rurban Estates Limited to undertake a noise assessment to accompany an outline planning application for the proposed residential development at land east of Lunce's Hill, Haywards Heath.

1.1.2 The proposed development is bounded by Lunce's Hill to the west and lies partially within the boundary of Lewes District Council (LDC) and partially in Mid Sussex District Council (MSDC).

1.1.3 As the predominant sound source affecting the site is vehicular movement, a noise impact assessment has been undertaken in accordance with the guidance contained in 'Professional Practice Guidance on Planning and Noise – New Residential Development' (ProPG).

1.1.4 RPS is a member of the Association of Noise Consultants (ANC), the representative body for acoustics consultancies, having demonstrated the necessary professional and technical competence. The assessment has been undertaken with integrity, objectivity, and honesty in accordance with the Code of Conduct of the Institute of Acoustics (IOA) and ethically, professionally, and lawfully in accordance with the Code of Ethics of the ANC.

1.1.5 The technical content of this assessment has been provided by RPS personnel, all of whom are corporate members (MIOA) of the IOA (the UK's professional body for those working in acoustics, noise and vibration). This report has been peer reviewed within the RPS team to ensure that it is technically robust and meets the requirements of our Integrated Management System.

2 ASSESSMENT METHODOLOGY

2.1 Introduction

2.1.1 This section of the assessment details the assessment methodology utilised to consider the potential impact of noise on the proposed residential development, and the mitigation measures that are required to protect the amenity of the proposed residents.

2.2 Policy & Procedures

2.2.1 This assessment has been undertaken in accordance with current planning and technical guidance, and best practice methods.

- National Planning Policy Framework, 2024 (NPPF).
- Planning Practice Guidance - Noise, 2019 (PPG).
- Noise Policy Statement, 2010 (NPSE).
- Planning Noise Advice Document (2023) (Mid Sussex).
- Lewes District Local Plan: Part 2 - Policy DM23.
- Mid Sussex District Plan Policy DM29.
- Professional Practice Guidance on Planning & Noise. New Residential Development. May 2017 (ProPG).
- British Standard 7445-2:1991 Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use. (BS:7445-2:1991).
- British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings (BS:8233:2014).
- AVO - Acoustics Ventilation and Overheating - Residential Design Guide, 2020 (AVO).

2.2.2 Details of these guidance documents are provided in Appendix A.

2.3 Site Description

2.3.1 The development site comprises agricultural fields and is irregular in shape. Broadly speaking, to the north there are existing residential dwellings, and a future residential development which has been consented (Planning Ref: DM/19/0206). Further north beyond is a strategic development site for 375 new homes and a primary school which has been given resolution to grant planning permission under ref DM/22/2272 by MSDC's Planning Committee.

2.3.2 To the east the site is bound by woodland, and south the site is bounded by open fields.

2.3.3 To the west the site is bounded by Lunce's Hill, with a residential development (Planning Ref: DM/22/0733) beyond which was under construction during the site survey in September 2024, but is complete at the time of writing this report.

2.4 Baseline Survey

2.4.1 Baseline noise measurements have been undertaken in two locations on the development site between the 17th and 18th September 2024.

2.4.2 Full details of the measurement methodology and the measured levels are presented in Section 3 and Appendix B of this report.

2.5 Noise Modelling

2.5.1 The assessment has utilised the calculations from the computer noise model, SoundPLAN version 9.1.

2.5.2 SoundPLAN v9.1 noise modelling software has been used to calculate the propagation of noise from Lunce's Hill at proposed dwellings, and to determine the need for any mitigation measures.

2.5.3 The modelling has been carried out in accordance with ISO 9613-2:2024 Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors (ISO9613). The software uses geographical information to create a model of the study area on which to generate noise contours and includes objects that affect the propagation of sound, such as buildings and topography.

2.6 Ventilation & Overheating

2.6.1 This assessment includes a consideration of the potential risk of overheating in the proposed dwellings.

3 BASELINE CONDITIONS

3.1 Introduction

3.1.1 This section of the assessment sets out the details of the baseline measurement survey.

3.1.2 Prior to undertaking the noise measurements, a review of the site was carried out using online free to view mapping and aerial and street photography.

3.1.3 Additionally, a site walk-over was conducted to ensure that there were no further noise sources which were not identified during the initial desk-based review of the site.

3.2 Baseline Survey Methodology

3.2.1 To establish the existing levels of environmental sound affecting the proposed development site, a predominantly unattended baseline sound survey was carried out at two locations, LT1 and LT2, between 17th and 18th September 2024. A plan showing the measurement locations and site boundary can be found in Appendix C.

3.2.2 The first unattended survey position (LT1) was located at the western site boundary, 5m from Lunce's Hill. The microphone was installed 1.5 m above local ground level in a free-field position (more than 3.5 m from any reflective surfaces, other than the ground), with an environmental wind shield.

3.2.3 At the time of deploying the survey, the main sound source on site was vehicular movement from Lunce's Hill. There was also some noise from wind in the surrounding trees, and noise from overflying aircraft, bird song and distant vehicular movement.

3.2.4 The second unattended survey position (LT2) was located further north and east, farther from the road. The microphone was set up 1.5 m above local ground level, in a free-field location, with an environmental wind shield.

3.2.5 At the time of deploying the survey, the acoustic environment was similar to LT1, but with the expected reduction in vehicular movement noise, due to the distances from the road.

Instrumentation

3.2.6 All sound level measurements were made using 'Class 1' Rion NL-52 sound level meters (SLMs) in accordance with BS 7445-2:1991. Calibration of the equipment was carried out before and after measurements using a Rion NC-74 calibrator. No significant drift (< ± 0.5 dB) was observed.

3.2.7 Data were logged in 100 ms samples, with the required assessment parameters and measurement periods extracted in post-processing. The sound pressure levels used in this assessment are the logarithmic average of the various measured daytime $L_{Aeq,16hr}$ and night-time $L_{Aeq,8hr}$ levels, which are themselves the logarithmic averages of all the 15-minute sound pressure data for each day and night-time period, respectively.

3.2.8 The maximum ($L_{AFmax,T}$) sound levels at LT1 have been post-processed for the night-time period. The L_{AFmax} level used in this assessment is the 10th highest $L_{AFmax,1min}$ level from a representative night-time period.

3.2.9 Details of the instrumentation used during the survey are provided in Table 3.1 below. Calibration certificates of the equipment used are available upon request.

Table 3.1: Equipment Details

Instrument	Make/Model	Serial Number	Measurement Location	Calibration Levels dB		
				Reference	Level at Start	Level at End
Sound Level Meter	Rion NL-52	164423	LT1	94.0	94.0	94.0
Sound Level Meter	Rion NL-52	164424	LT2	93.0	93.9	94.0
Calibrator	Rion NC-74	34683836	LT1 / LT2	94.0	N/A	N/A

Weather Conditions

3.2.10 On deployment, the temperature was 18 ºC, 4 ms^{-1} wind from the southwest. On collection, the temperature was 16 ºC, 5 ms^{-1} wind from the southwest.

3.3 Measured Levels

3.3.1 Based on the above, Table 3.2 below provides the representative baseline external sound levels used in this assessment. Full details of the measured levels are provided in Appendix B.

Table 3.2: Baseline Survey Data

Measurement Location	Average Daytime $L_{Aeq,16hr}$, dB	Average Night-time $L_{Aeq,8hr}$, dB	10th Highest Night-time $L_{AFmax,1min}$
LT1	66	58	80
LT2	47	38	58*
*Established using the 15-min data			

4 DETAILS OF THE COMPUTER NOISE MODELLING

4.1 Introduction

4.1.1 To calculate sound levels associated with vehicular movement movements on Lunce's Hill, a 3D noise model has been built using SoundPLAN v9.1 acoustic modelling software. The input data for the model has been based upon information from the baseline survey, and RPS's experience of other, similar projects.

4.1.2 The model predicts sound levels under light down-wind conditions based on hemispherical sound propagation with corrections for atmospheric absorption, ground effects, screening, and directivity based on the procedure detailed in ISO 9613-2:2024 *'Acoustics — Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors.*

4.2 Model Inputs

4.2.1 The placement of road sources was based on the imported Ordnance Survey data and maps of the surrounding area, and have been created in the model as line sources. Night-time L_{AFmax} events have been modelled as moving point sources.

4.2.2 The survey data was allocated to the model sources and then calibrated such that the modelled noise levels matched up with the levels measured on site. This procedure was undertaken for daytime, night-time and night-time L_{AFmax} noise levels.

4.2.3 The placement of the on-site buildings has been based on an indicative housing layout which has been provided by the client. It shows one way in which shows one way in which dwellings could be set-out on the site.

Other Inputs

4.2.4 The following assumptions have been incorporated into the noise model:

- The topography of the site and the surrounding area has been obtained from the Department for Environment, Food and Rural Affairs (Defra) as 1 m LiDAR data;
- The effect of screening from solid structures (buildings) has been incorporated into the modelling process by importing OS Open Data 'Settlement Area' shapefile data into the model;
- Any garden fences have been modelled as 1.8 m fences; and
- The ground type in the model has been set to mixed ground (G=0.5).

4.3 Model Results

4.3.1 Predictions have been undertaken of noise levels across the development, and those which are incident on the façades of the proposed development due to vehicular movement sources.

4.3.2 Noise levels incident on the façades of the proposed development have been predicted based on the modelling assumptions and methodology detailed above. The model predicts daytime $L_{Aeq,16hr,}$ night-time $L_{Aeq,8hr,}$ and the 10th highest night-time $L_{AFmax,5min}$ levels.

4.3.3 Details on the results obtained from the vehicular movement noise modelling can be found in Appendix D, E, F, G & H.

5 UNCERTAINTY

5.1 Introduction

5.1.1 This section discusses the limitation and potential sources of uncertainty within the assessment methodology. The uncertainties are discussed below for the baseline sound survey, acoustic modelling and subsequent assessment.

5.2 Baseline Sound Survey

5.2.1 All sound surveys are limited by the instrumentation used to undertake the measurements. Uncertainty may arise as a result of the internal processes within the sound level meter to measure and process the measured sound into the relevant noise indices. The accuracy of the equipment used has been monitored via calibration both prior to and upon completion of the noise survey at each position. All sound level meters used meet the 'Class 1' criteria defined within BS EN 61672-2:2013+A1:2017 – 'Electroacoustics. Sound level meters – Pattern evaluation tests'. All calibrators used meet the 'Class 1' criteria defined within BS EN IEC 60942 – 'Electroacoustics sound calibrators'.

5.2.2 Any influence due to human error has been minimised by ensuring that all sound monitoring equipment is installed safely and securely. All measurements were undertaken at 1.5 m above local ground level and a minimum of 3.5 m from other reflective surfaces to minimise influence from reflected sound waves.

5.3 Acoustic Modelling & Calculations

5.3.1 Uncertainty and limitations arise during the modelling process as a result of the sound propagation models used to inform the calculations. The sound levels at the nearest receptors have been calculated using the internationally accepted and recently updated guidance within ISO 9513-2:2024, implemented by the 3D acoustic modelling software (SoundPLAN). This standard claims an accuracy of ±3 dB for source heights up to 30 m and propagation distances between 100 m and 1 km.

5.3.2 The calculations have been undertaken using sound data and information provided by the client and RPS' experience with similar sites. As such, the data adopted as part of this assessment has been chosen to provide realistic noise emission levels.

6 NOISE IMPACT ASSESSMENT

6.1 Introduction

6.1.1 This section of the assessment considers the potential impact of existing sources of sound on the proposed development in terms of ProPG, AVO, and BS8233. In terms of BS8233, this assessment considers external noise levels in gardens during the daytime, and internal noise levels in living rooms and bedrooms during the daytime and night-time, as appropriate.

6.1.2 The assessment relies upon the measured levels, as well as the results of the computer noise model.

6.1.3 This assessment report has been prepared to accompany an outline planning application, and so the layout which has been utilised in this assessment shows one way in which the houses could be laid out on site. The final design of the development may vary from that shown within Appendix E.

6.2 Noise Risk Assessment

6.2.1 The guidance document ProPG allows for a risk assessment to be undertaken to establish the likelihood of an adverse effect from existing transportation noise.

6.2.2 This risk assessment methodology is shown in Table 3-2 of ProPG. In terms of this methodology, the part of the site closest to Lunce's Hill would be at a high risk of an adverse impact from existing transportation noise during the daytime and night-time.

6.2.3 A review of the results of the noise modelling shown in Appendix D identifies that the likelihood of an adverse effect from noise falls below 'medium' at a distance of approximately 60 m from Lunce's Hill.

6.2.4 This assessment, in terms of ProPG, identifies that a stand-off from Lunce's Hill would be recommended to reduce the likelihood of an adverse impact.

6.3 Stage 1 Overheating Assessment

6.3.1 The guidance document AVO allows for a risk assessment to be undertaken to establish the likelihood of an adverse effect from overheating in the proposed dwellings, with respect to noise.

6.3.2 This risk assessment methodology is shown in Figure 1 of AVO. In terms of this methodology, those dwellings located closest to Lunce's Hill would be at a medium risk of an adverse noise effect relating to overheating during the daytime and night-time.

6.3.3 Noise levels further into the site and at a greater distance from Lunce's Hill are at a negligible risk of overheating.

6.3.4 A review of the results of the noise modelling shown in Appendix D identifies that the likelihood of an adverse noise effect relating to overheating is 'low' at a distance of approximately 60 m from Lunce's Hill.

6.3.5 This assessment, in terms of AVO, identifies that a stand-off from Lunce's Hill would be recommended so as to reduce the likelihood of an adverse noise effect relating to overheating.

6.3.6 Overheating is covered by the Building Regulations Approved Document O (ADO). This includes a requirement for suitable residential amenity to be maintained whilst excess heat is removed and includes noise thresholds for bedrooms at night where open windows cannot be used to avoid overheating. It is considered unlikely that occupants will be subject to significant adverse noise impacts if the requirements of ADO are achieved.

6.4 External Noise Levels in Gardens

6.4.1 BS8233 states that external noise levels should be limited so as to avoid annoyance in gardens of proposed dwellings. A noise level in gardens of 50 dB $L_{Aeq,16Hour}$ or less is seen as a desirable level, and 55 dB $L_{Aeq,16Hour}$ should not normally be exceeded.

6.4.2 The results of the noise modelling, shown in Appendix D, identify that some parts of the site will exceed 55 dB(A) during the daytime, and so some noise mitigation measures may be required for a limited number of dwellings.

6.4.3 However, as shown in Appendix E, an indicative housing layout has been incorporated into the computer noise model. The results of this computer noise model show that, with the indicative layout in place, the noise level in all gardens of proposed dwellings will be below 55dB(A) during the daytime.

6.4.4 In addition, the significant majority of dwellings will experience a noise level in the garden area which is 50 dB(A) or less during the daytime.

6.4.5 Therefore, where dwellings are located more than 60 m from Lunce's Hill, additional mitigation measures other than standard 1.8m high fences would not be required. Mitigation measures may be required for plots which are within 60 m of Lunce's Hill.

6.5 Internal Noise Levels in Living Rooms and Bedrooms

6.5.1 As part of the guidance contained in BS8233 it is recommended that internal noise levels do not exceed 35 dB $L_{Aeq,16hr}$ during the day and 30 dB $L_{Aeq,8hr}$ at night. It also makes reference to the World Health Organization 'Guidelines on Community Noise' which recommends that there are no more than 10 $L_{AFmax,T}$ events exceeding 45 dB(A) per night.

6.5.2 Estimating associated external levels by allowing 13 dB typical reduction for a partially-open window, the results of the modelling in Appendix F, G & H show that some facades have a noise level which exceeds 48 dB(A) during the daytime, and 43 dB(A) L_{Aeq} and 58 dB $L_{AF,Max}$ during the night-time. Therefore, some additional façade treatment is required to reduce internal ambient noise levels to within guideline levels at some locations as a normal façade design with open windows will not be sufficient to control internal ambient noise levels.

6.6 Proposed Community Building

6.6.1 The development proposals include the change of use of the existing barn on the site into flexible community uses, with Class Use E/F2. The exact use of the space is undecided at this outline stage of the planning process. However, the use will remain in keeping with the adjacent residential uses.

6.6.2 Where necessary, noise from the proposed E/F2 use can be controlled through a planning condition attached to the planning approval.

6.7 Summary

6.7.1 This assessment has considered the potential impact of noise on the proposed dwellings in terms of ProPG, AVO and BS8233.

6.7.2 The assessment has identified that, where dwellings are located at least 60 m from Lunce's Hill, the potential adverse effect of noise is below medium, and the potential adverse noise effect relating to overheating is low. Furthermore, with this stand-off, only standard 1.8m high garden fences, and normal double glazing and ventilation, are required to achieve internal and external noise guideline levels.

6.7.3 In addition, the proposed use of the barn (Use Class E/F2) will not produce significant noise emissions, and will be compatible within a residential context.

7 NOISE MITIGATION MEASURES

7.1 Introduction

7.1.1 This section identifies the noise mitigation measures required to achieve internal and external noise guideline levels during the daytime and night-time.

7.2 Garden Noise Mitigation

7.2.1 The assessment has shown that, with an appropriate housing layout external noise guideline levels will be met in gardens. Therefore, noise mitigation measures are not required.

7.3 Mitigation for Living Rooms and Bedrooms

7.3.1 The impact assessment in Section 6 of this report has identified varying needs for façade mitigation for the proposed dwellings.

7.3.2 To predict internal noise levels, a noise break-in calculation has been undertaken following the guidance contained in BS8233. This allows the internal ambient noise levels to be predicted based on the noise levels incident on the façade, the façade dimensions and the construction materials.

7.3.3 It has been assumed that non-bedroom living areas will be 4 x 5 m and bedrooms will be 3 x 4 m. All rooms have been assumed to be 2.5 m high. It has been assumed that non-bedroom living areas will have a reverberation time of 0.8 s and for bedrooms will be 0.5 s.

7.3.4 Due to the range of noise levels predicted at the façades of the proposed development, two different façade specifications are proposed: an 'enhanced spec' to control noise levels at the most affected façades; and a 'standard spec' which will be sufficient to control noise levels at the less affected façades. The 'standard spec' is split further into two categories, one where open windows can be used to control overheating, and one where they cannot. As such, for this latter category (and the 'enhanced spec'), some form of passive ventilation is required. These specifications are detailed in Table 8.1 below.

Table 8.1: Facade Mitigation Strategies

Façade Mitigation Strategy	External Wall R_W (dB)	Windows R_W (dB)	Ventilation $D_{n,e,w}$ (dB)	Composite Sound Reduction R_W (dB)
Façade Treatment 1 (Standard Spec, Open windows)	51[1]	30[2]	N/A	13 (With windows open)
Façade Treatment 2 (Standard Spec)	51[1]	30[2]	49[4]	42
Façade Treatment 3 (Enhanced Spec)	51[1]	37[3]	49[4]	46

[1]Standard brick / block external façade construction (as specified in BS 8233:2014).

[2]Pilkington 4 / 12 / 4 (4 mm float glass, 12 mm air gap, 4 mm float glass)

[3]Pilkington 10 / 12 / 6 (10 mm float glass, 12 mm air gap, 6 mm float glass)

[4]Acoustic trickle ventilators (based on manufacturers data for Glidevale Acoustic Fresh 80 dB vent) in open condition. It should be noted that this performance assumes two ventilation openings. Should additional ventilation openings be needed to meet the requirements of Approved Document F, the required acoustic performance in terms of $D_{n,e,w}$ will need to be increased by 10log(N), where N is the number of vents required. For example, if two additional vents are required to provide sufficient equivalent area the performance of each vent will need to be increased by 3 dB.

7.3.5 Appendix I & J show the requisite façade treatment needed for each façade to reduce internal ambient noise levels to within acceptable levels, for living rooms during the day and bedrooms at night, respectively. If these façade treatments, or equivalent ones, are used on the required façades,

then internal noise levels in all premises will be below the internal guideline levels detailed in BS 8233:2014 and any adverse impact due to vehicular movement noise will be very unlikely.

7.4 Ventilation and Overheating

7.4.1 It is a requirement of Building Regulations Part F that the following types of ventilation are provided, where windows should not be opened for ventilation:

- Whole dwelling ventilation (previously referred to as 'background' ventilation);
- Extract ventilation (in kitchens and bathrooms)'
- Purge ventilation.

7.4.2 The likely acoustic impact of each type of ventilation is discussed in the following sections.

Whole Dwelling Ventilation

7.4.3 Passive through-wall ventilators are specified in the façade treatments for some of the façades of the proposed development. These will provide the whole dwelling ventilation required. Those façades without passive through-wall ventilators will get whole dwelling ventilation from open windows.

Extract Ventilation

7.4.4 Extract ventilation is required in rooms where most pollutants or water vapour are generally found, i.e., kitchens (cooker hoods, etc.) and bathrooms (bathroom fans). These spaces are not considered habitable rooms and the method used to provide ventilation is unlikely to reduce the sound insulation of the façade. Therefore, it is unlikely that providing extract ventilation in these spaces will result in adverse noise impacts.

Purge Ventilation

7.4.5 Purge ventilation is required to allow rapid removal of pollutants released from occasional activities (e.g., burning toast or when painting) and is normally provided by open windows. It is generally accepted that, as purge ventilation is only required occasionally and for short periods, increases in noise level during the purge ventilation condition (e.g., when windows are opened) will not result in adverse impacts.

Overheating

7.4.6 The normal method of providing relief from overheating is to open windows. When windows are open to provide thermal comfort, it is likely that internal noise levels will increase. The impact that any increased internal noise levels will have depends on two factors:

- The level of noise inside the dwelling / habitable rooms; and
- How often windows need to be opened (i.e., how often or long occupants are exposed to increased noise levels).

7.4.7 To reduce any adverse noise impacts the development, where possible, should be designed to reduce the duration and frequency of occurrence of overheating when windows are shut. This will in turn reduce adverse noise effects as occupants will be exposed to increased noise levels for a shorter period of time.

7.4.8 This has been considered as part of an assessment in line with the Acoustics, Ventilation & Overheating (AVO) guide detailed in Appendix A.

7.5 Summary

7.5.1 With the implementation of the mitigation measures defined above, the appropriate internal and external noise guideline levels will be achieved in all dwellings.

7.5.2 In terms of PPG-Noise, the noise at proposed dwellings will be below LOAEL with mitigation and so, in noise terms, there is no reason not to grant planning approval for the proposed residential development site.

8 CONCLUSIONS

8.1 Lunce's Hill, Haywards Heath

8.1.1 RPS has carried out a noise assessment for the proposed residential development located at land off Lunce's Hill, Haywards Heath, and is described as;

> *'Outline planning application for the erection of up to 130 dwellings, together with the change of use of an existing barn for flexible community or commercial use, along with associated outdoor space and landscaping, drainage infrastructure, hard and soft landscaping, parking, access and associated works (all matters reserved except for access).'*

8.1.2 The site sits partially within the boundary of Lewes District and partially in Mid Sussex District.

8.1.3 The dominant noise source, which will potentially affect the residents of the proposed residential development, is vehicular movement on Lunce's Hill.

8.1.4 The results of the noise survey and assessment indicate that, mitigation measures are not required to meet the guideline value of 55 dB $L_{Aeq\ (16\ Hour)}$ in outdoor living areas, such as gardens.

8.1.5 During the day and night-time, windows with standard thermal glazing will be sufficient to control internal noise levels in sensitive rooms closest to Lunce's Hill. An alternative means of ventilation will be required so that the occupant can close the windows when desired, whilst maintaining adequate ventilation.

8.1.6 Dwellings further into the site will be screened by intervening dwellings, therefore they will achieve the recommended external noise levels, and internal noise levels even with open windows on every facade.

8.1.7 An overheating assessment has been carried out in accordance with AVO guidance. The Early Stage Overheating Risk Tool identifies that, at a distance of more than 60 m from Lunce's Hill, proposed development will be at a low risk of experiencing an adverse noise impact as a result of overheating. Therefore, it is not required to consider the overheating risk at the site further at this stage.

8.1.8 At this stage, a detailed site layout has not yet been confirmed. Mitigation requirements will need to be confirmed once a detailed design layout is available, at the reserved matters stage.

8.1.9 The proposed use of the barn (Use Class E/F2) will not produce significant noise emissions, and will be compatible within a residential context.

8.1.10 In terms of PPG-Noise, the noise at proposed dwellings will be below LOAEL with mitigation. Further the proposed barn conversion will be compatible with the residential setting. Subsequently, in noise terms, there is no reason not to grant planning approval for the proposed residential development site.

Appendix A
POLICY AND GUIDANCE

Noise Policy Statement for England

The Noise Policy Statement for England [i] (NPSE), published in March 2010 by Defra, aims to provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion.

Paragraph 1.6 of the NPSE sets out the long-term vision and aims of Government noise policy:

> *"Noise Policy Vision*
>
> *Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."*
>
> *"Noise Policy Aims*
>
> *Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*
>
> - *avoid significant adverse impacts on health and quality of life.*
> - *mitigate and minimise adverse impacts on health and quality of life.*
> - *and where possible, contribute to the improvement of health and quality of life."*

The aims require that all reasonable steps should be taken to avoid, mitigate and minimise adverse effects on health and quality of life whilst also taking into account the guiding principles of sustainable development, which include social, economic, environmental and health considerations.

National Planning Policy Framework

The National Planning Policy Framework [ii] (NPPF) 2024 sets out the Government's planning policies for England and how these are expected to be applied. The emphasis of the Framework is to allow development to proceed where it can be demonstrated to be sustainable. In relation to noise, Paragraph 198 of the Framework states:

> *"Planning policies and decisions should ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from the development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
>
> *b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
>
> *c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'*

Planning Practice Guidance – Noise (PPG-N)

The Government has published Planning Practice Guidance on a range of subjects including noise [iii]. The guidance forms part of the NPPF and provides advice on how to deliver its policies. The PPG-N reiterates general guidance on noise policy and assessment methods provided in the NPPF, NPSE and British Standards (BSs) and contains examples of acoustic environments commensurate with various effect levels. This guidance is provided in the reproduced in the following table:

Apx Table 1: Summary of Guidance from NPSE and PPGN

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level (NOEL)			
Not present	No Effect	No Observed Effect	No specific measures required
Present and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

British Standard 8233:2014

BS 8233:2014 [iv] provides guideline values for desirable internal ambient noise levels in unoccupied spaces including.

Guidance in respect of desirable indoor ambient noise levels in dwellings is contained in Table 4 of BS 8233:2014 and are reproduced below.

Apx Table 2: Internal ambient noise criteria.

Activity	Location	Daytime (07:00 – 23:00)	Night-time (23:00 – 07:00)	
		$L_{Aeq,16h}$ (dB)	$L_{Aeq,8h}$ (dB)	L_{AFmax} (dB)
Resting	Living room	35	-	-
Dining	Dining area	40	-	-
Sleeping & Daytime Resting	Bedroom	35	30	45

NOTE 4 Regular individual noise events (e.g aircraft, trains) can result in sleep disturbance. A guideline value may be set in terms of the Sound Exposure Level (SEL) or $L_{Amax,F}$, depending on the character and number of events within a given night. In noise-sensitive rooms during the night-time period, good acoustic design can generally be adopted such that individual noise events do not normally exceed 45 dB $L_{Amax,F}$ more than 10 times per night. However, where it is not reasonably practicable to achieve this criteria, the choice of criteria will be dictated by additional factors such as the source, number, predictability, and regularity of noise events

With reference to noise levels in residential external amenity areas BS 8233:2014 provides the following guidance:

> *"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited. Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e., in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space."*

British Standard 4142:2014+A1:2019

BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' describes a method for rating and assessing sound of an industrial and/or commercial nature. The standard is applicable to the determination of the rating level of industrial or commercial sound as well as the ambient, background and residual noise levels for the purposes of investigating complaints, assessing sound from proposed new, modified or additional sources or assessing sound at proposed new dwellings. The determination of whether a noise amounts to a nuisance is beyond the scope of the Standard, as is rating and assessment of indoor noise levels. The Standard compares the "rating level" of the noise (i.e. the specific noise level from the site under investigation adjusted using penalties for acoustic character such as tonality or impulsiveness) with the pre-existing background noise level.

The foreword to the Standard provides the following introduction for the assessment of human response to sound:

> *"Response to sound can be subjective and is affected by many factors, both acoustic and non-acoustic. The significance of its impact, for example, can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood."*

The note to paragraph 8.5 of the Standard is relevant to the assessment of the proposed development and states:

> *"Where a new noise-sensitive receptor is introduced and there is extant industrial and/or commercial sound, it should be recognized that the industrial and/or commercial sound forms a component of the acoustic environment. In such circumstances other guidance and criteria in addition to or alternative to this standard can also inform the appropriateness of both introducing a new noise-sensitive receptor and the extent of required noise mitigation."*

BS 4142:2014+A1:2019 primarily provides a numerical method by which to determine the significance of sound of an industrial nature (i.e. the 'specific sound' from the proposed development) at residential NSRs. The specific sound level may then be corrected for the character of the sound (e.g. perceptibility of tones and/or impulses), if appropriate, and it is then termed the 'rating level', whether or not a rating penalty is applied. The 'residual sound' is defined as the ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound or when the specific sound sources is absent or yet to be introduced, as in a planning application situation.

Professional Practice Guidance (ProPG) Planning and Noise – New Residential Development

ProPG [v] provides practitioners with guidance on a recommended approach to the management of noise within the planning system in England for new residential development. The guidance has been produced by the ANC, IOA and Chartered Institute of Environmental Health (CIEH) and is expected to be widely adopted by planning authorities as best practice when considering noise affecting new residential development. The scope of this ProPG is restricted to the consideration of new residential development that will be exposed predominantly to airborne noise from transport sources, though it is considered appropriate to incorporate other sources of noise where they are present but not dominant.

Overview

This ProPG advocates a systematic, proportionate, risk based, two-stage, approach. This encourages early consideration of noise issues, facilitates straightforward accelerated decision making for lower risk sites and assists proper consideration of noise issues where the acoustic environment is challenging. The two sequential stages of the overall approach are:

- Stage 1 – an initial noise risk assessment of the proposed development site; and
- Stage 2 – a systematic consideration of four key elements.

The four key elements to be undertaken in parallel during Stage 2 of the recommended approach are listed below, with further details in the following sections:

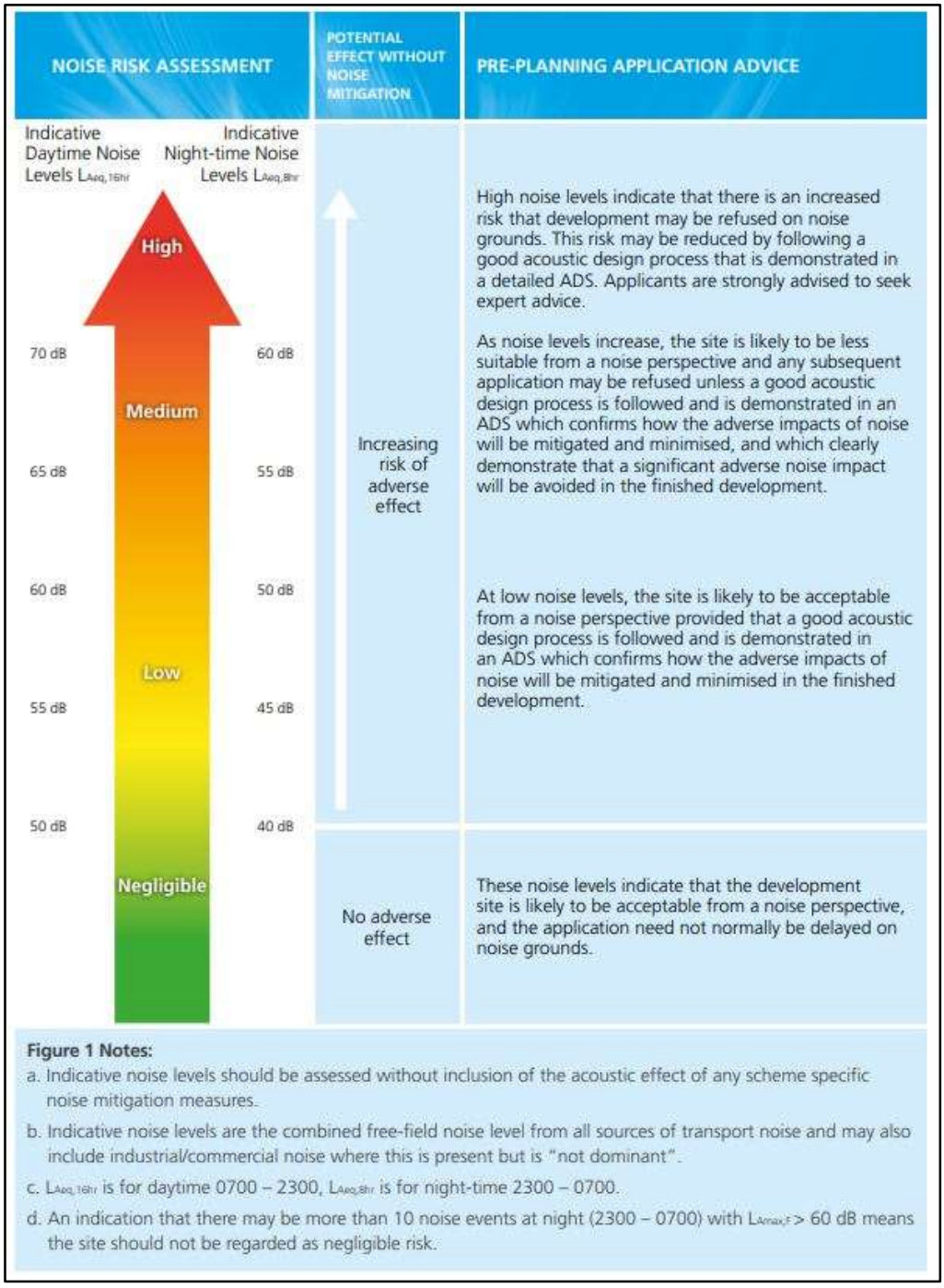
- Element 1 – demonstrating a “Good Acoustic Design Process”;
- Element 2 – observing “Internal Noise Level Guidelines”;
- Element 3 – undertaking an “External Amenity Area Noise Assessment”; and
- Element 4 – consideration of “Other Relevant Issues”.

The approach is underpinned by the preparation and delivery of an ADS. An ADS for a site assessed as high risk should be more detailed than for a site assessed as low risk. An ADS should not be necessary for a site assessed as negligible risk.

Stage 1 Risk Assessment

The Stage 1 Initial Site Noise Risk Assessment that is provided in Figure 1 of the ProPG is shown below in Apx Figure 1. This initial risk assessment is based on indicative noise levels derived from current guidance and experience. The indicative noise levels are intended to provide a sense of the noise challenge at a potential residential development site and should be interpreted flexibly having regard to the locality, the project and the wider context. In the final column, the initial noise risk assessment is aligned with pre-planning application guidance that highlights the increasing importance of good acoustic design as the noise risk increases.

Apx Figure 1: ProPG Stage 1 - Initial Site Noise Risk Assessment



Stage 2 Element 1 - Good Acoustic Design Process

The ProPG states that planning applications for new residential development should include evidence that the following have been properly considered:

- Check the feasibility of relocating or reducing noise levels from relevant sources.
- Consider options for planning the site or building layout.

- Consider the orientation of proposed building(s).
- Select construction types and methods for meeting building performance requirements.
- Examine the effects of noise control measures on ventilation, fire regulation, health and safety, cost, CDM (construction, design and management) etc.
- Assess the viability of alternative solutions.
- Assess external amenity area noise.

Stage 2 Element 2 – Internal Noise Level Guidelines

The internal noise level guidelines provided under Element 2 above in Figure 2 of ProPG are provided in Apx Table 3 below. These are based upon the guidance in British Standard (BS) 8233:2014: 'Guidance on sound insulation and noise reduction for buildings.

Apx Table 3: ProPG Internal Noise Level Guidelines

Activity	Location	Daytime (07:00 – 23:00 hrs)	Night-time (23:00 – 07:00 hrs)
Resting	Living room	35 dB $L_{Aeq,16r}$	-
Dining	Dining room / area	40 dB $L_{Aeq,16r}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16r}$	30 dB $L_{Aeq,16r}$ 45 dB $L_{Amax,F}$ (Note 4)

Accompanying Note 4, 5, 6 & 7 from Figure 2 of the ProPG states the following:

> *"NOTE 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB $L_{Amax,F}$ more than ten times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.*
>
> *NOTE 5 Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g., trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7.*
>
> *NOTE 6 Attention is drawn to the requirements of the Building Regulations.*
>
> *NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as "unreasonable". Where such exceedances are predicted, applicants should be required to show*

how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing "unacceptable" noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form (see Section 3.D)."

Paragraphs 2.34 to 2.36 of the ProPG contain guidance regarding the use of open windows in relation to ventilation and overheating:

"Where the LPA accepts that there is a justification that the internal target noise levels can only be practically achieved with windows closed, which may be the case in urban areas and at sites adjacent to transportation noise sources, special care must be taken to design the accommodation so that it provides good standards of acoustics, ventilation and thermal comfort without unduly compromising other aspects of the living environment. In such circumstances, internal noise levels can be assessed with windows closed but with any façade openings used to provide "whole dwelling ventilation" in accordance with Building Regulations Approved Document F [vi] (e.g., trickle ventilators) in the open position (see Supplementary Document 2). Furthermore, in this scenario the internal L_{Aeq} target noise levels should not generally be exceeded.

It should also be noted that the internal noise level guidelines are generally not applicable under "purge ventilation" conditions as defined by Building Regulations Approved Document F, as this should only occur occasionally (e.g., to remove odour from painting and decorating or from burnt food).

In addition to providing purge ventilation, open windows can also be used to mitigate overheating. Therefore, should the LPA accept a scheme is to be assessed with windows closed, but this scheme is reliant on open windows to mitigate overheating, it is also necessary to consider the potential noise impact during the overheating condition. In this case a more detailed assessment of the potential impact on occupants should be provided in the ADS. It should be noted that overheating issues will vary across the country and any specific design solutions will need to be developed alongside advice from energy consultants."

Paragraph 2.38 of the ProPG states the following with respect to mechanical service plant:

Where mechanical services are used as part of the ventilation or thermal comfort strategy for the scheme, the impact of noise generated by these systems on occupants should also be assessed.

Stage 2 Element 3 – External Amenity Area Noise Assessment

The ProPG refers to the design ranges in BS 8233:2014 with respect to the assessment of external amenity, as well as guidance in the PPG-N. Based on these two documents the following guidance is provided with respect to the assessment of noise in external amenity areas:

(i) "If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended".

(ii) "The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$."

(iii) "These guideline values may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces."

(iv) "Whether or not external amenity spaces are an intrinsic part of the overall design, consideration of the need to provide access to a quiet or relatively quiet external amenity space forms part of a good acoustic design process."

(v) "Where, despite following a good acoustic design process, significant adverse noise impacts remain on any private external amenity space (e.g., garden or balcony) then that impact may be partially off-set if the residents are provided, through the design of the development or the planning process, with access to:

- *a relatively quiet facade (containing openable windows to habitable rooms) or a relatively quiet externally ventilated space (i.e., an enclosed balcony) as part of their dwelling; and/or*
- *a relatively quiet alternative or additional external amenity space for sole use by a household, (e.g., a garden, roof garden or large open balcony in a different, protected, location); and/or*
- *a relatively quiet, protected, nearby, external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or*
- *a relatively quiet, protected, publically accessible, external amenity space (e.g., a public park or a local green space designated because of its tranquillity) that is nearby (e.g., within a five-minute walking distance)."*

Stage 2 Element 4 – Other Relevant Issues

The ProPG states that the following other relevant issues, should be considered, where appropriate:

- (i) compliance with relevant national and local policy;
- (ii) magnitude and extent of compliance with the ProPG criteria;
- (iii) likely occupants of the development;
- (iv) acoustic design v unintended adverse consequences; and
- (v) acoustic design v wider planning.

Planning Recommendations

Having followed this approach to its end, it is envisaged that noise practitioners will then have a choice of one of four possible recommendations to present to the decision maker. In simple terms, the choice of recommendations are as follows:

- Planning consent may be granted without any need for noise conditions;
- Planning consent may be granted subject to the inclusion of suitable noise conditions;
- Planning consent should be refused on noise grounds in order to avoid significant adverse effects ("avoid"); or
- Planning consent should be refused on noise grounds in order to prevent unacceptable adverse effects ("prevent").

Acoustics, Ventilation and Overheating Residential Design Guide (AVO)

The AVO guide [vii] recommends an approach to acoustic assessments for residential development that takes into consideration the interdependence of provisions for acoustics, ventilation and overheating.

The application of the AVO Guide is intended to demonstrate good acoustic design in accordance with ProPG.

A two-stage assessment approach is advised as:

- Stage 1: Site Risk Assessment
- Stage 2: Detailed Assessment of Adverse Effect

The guide provides a means of assessment to satisfy the need to consider acoustics, ventilation and overheating at the planning stage.

It also assists in educating clients, environmental health officers, planning officers and other stakeholders of the interdependence of design for acoustics, ventilation and overheating.

Appendix B
NOISE MONITORING RESULTS

LT1

	Start Time	Measurement Time	LAeq	LAE	LAmax	LAmin	Ly	LA5	LA10	LA50	LA90	LA99
1	17/09/2024 12:45	00d 00:15:00.0	65.7	95.3	84.9	51.2	101.4	74.4	69.4	62.4	54.5	52.3
2	17/09/2024 13:00	00d 00:15:00.0	65.1	94.7	78.3	51.7	100.7	73.7	69.3	61.6	54.5	52.9
3	17/09/2024 13:15	00d 00:15:00.0	65.6	95.2	77.1	47.0	97.8	73.8	69.9	62.5	54.6	49.0
4	17/09/2024 13:30	00d 00:15:00.0	65.6	95.2	78.7	44.7	98.5	74.4	69.9	62.0	52.9	46.5
5	17/09/2024 13:45	00d 00:15:00.0	65.9	95.5	85.0	44.0	103.1	73.6	69.9	62.7	53.6	45.8
6	17/09/2024 14:00	00d 00:15:00.0	66.1	95.7	78.4	52.4	103.1	74.2	70.3	62.9	55.1	53.8
7	17/09/2024 14:15	00d 00:15:00.0	65.7	95.3	81.3	52.3	98.0	74.5	69.9	61.7	54.6	53.1
8	17/09/2024 14:30	00d 00:15:00.0	66.4	96.0	79.8	51.7	104.3	74.9	70.6	62.7	55.2	53.2
9	17/09/2024 14:45	00d 00:15:00.0	66.5	96.1	81.6	51.8	102.9	75.0	70.6	62.6	54.7	53.2
10	17/09/2024 15:00	00d 00:15:00.0	67.5	97.1	87.6	53.1	106.0	75.1	70.9	64.6	56.3	54.1
11	17/09/2024 15:15	00d 00:15:00.0	66.4	96.0	79.4	52.3	101.0	74.5	70.6	63.1	55.6	53.1
12	17/09/2024 15:30	00d 00:15:00.0	67.4	97.0	90.1	48.3	105.2	74.8	71.0	63.5	54.1	51.1
13	17/09/2024 15:45	00d 00:15:00.0	67.4	97.0	82.2	44.9	101.9	74.5	71.4	65.0	53.8	47.1
14	17/09/2024 16:00	00d 00:15:00.0	67.6	97.2	83.0	47.5	101.3	75.3	71.7	64.6	54.8	49.6
15	17/09/2024 16:15	00d 00:15:00.0	66.7	96.3	79.4	47.8	100.1	74.2	70.9	63.8	55.3	50.1
16	17/09/2024 16:30	00d 00:15:00.0	67.4	97.0	80.4	46.2	101.1	74.7	71.3	65.0	55.6	48.2
17	17/09/2024 16:45	00d 00:15:00.0	67.2	96.8	78.7	44.6	99.3	74.7	71.3	64.9	53.1	46.2
18	17/09/2024 17:00	00d 00:15:00.0	68.1	97.7	91.4	45.8	111.5	75.2	71.8	65.8	55.2	49.2
19	17/09/2024 17:15	00d 00:15:00.0	67.1	96.7	77.6	47.1	103.7	74.3	71.2	64.9	53.9	48.5
20	17/09/2024 17:30	00d 00:15:00.0	67.7	97.3	79.1	47.3	97.4	74.8	71.7	65.5	56.8	51.1
21	17/09/2024 17:45	00d 00:15:00.0	66.8	96.4	77.4	48.6	97.3	74.3	70.9	64.2	54.8	50.0
22	17/09/2024 18:00	00d 00:15:00.0	66.5	96.1	77.9	44.7	99.7	74.1	70.9	63.4	53.2	48.7
23	17/09/2024 18:15	00d 00:15:00.0	66.8	96.4	85.5	46.0	102.9	75.2	71.0	62.1	51.2	47.4
24	17/09/2024 18:30	00d 00:15:00.0	66.0	95.6	77.2	43.6	97.0	74.5	70.4	61.9	49.6	45.0
25	17/09/2024 18:45	00d 00:15:00.0	65.7	95.3	81.4	42.8	105.0	74.9	70.5	59.6	49.1	44.4
26	17/09/2024 19:00	00d 00:15:00.0	65.6	95.2	79.5	42.4	96.6	74.5	70.3	60.2	48.8	44.5
27	17/09/2024 19:15	00d 00:15:00.0	65.5	95.1	78.5	43.5	101.3	74.4	70.2	60.2	49.5	45.7
28	17/09/2024 19:30	00d 00:15:00.0	65.2	94.8	79.7	43.0	99.2	74.9	69.9	59.2	48.3	44.7
29	17/09/2024 19:45	00d 00:15:00.0	65.4	95.0	78.4	42.6	95.0	75.0	70.3	58.8	48.6	44.9
30	17/09/2024 20:00	00d 00:15:00.0	64.3	93.9	80.7	38.5	106.7	74.8	69.3	55.2	43.8	39.6
31	17/09/2024 20:15	00d 00:15:00.0	62.7	92.3	79.1	36.8	98.6	73.6	67.2	53.3	44.1	38.3
32	17/09/2024 20:30	00d 00:15:00.0	63.1	92.7	78.3	38.5	95.1	74.3	67.8	51.9	43.6	40.4
33	17/09/2024 20:45	00d 00:15:00.0	62.3	91.9	81.7	39.0	97.1	73.1	66.8	51.8	44.3	41.1
34	17/09/2024 21:00	00d 00:15:00.0	61.4	91.0	78.4	34.5	97.9	73.2	65.5	49.4	38.7	35.4
35	17/09/2024 21:15	00d 00:15:00.0	66.2	95.8	96.1	34.3	114.8	73.8	65.9	49.6	41.6	35.8
36	17/09/2024 21:30	00d 00:15:00.0	60.3	89.9	80.1	32.7	101.3	73.2	61.6	45.5	36.3	34.0
37	17/09/2024 21:45	00d 00:15:00.0	61.0	90.6	79.0	32.7	93.8	73.0	64.7	47.6	38.2	34.4
38	17/09/2024 22:00	00d 00:15:00.0	61.2	90.8	81.2	33.8	97.6	73.5	65.1	46.8	38.8	34.9
39	17/09/2024 22:15	00d 00:15:00.0	59.6	89.2	78.8	29.9	93.4	72.2	62.4	45.0	33.7	31.0
40	17/09/2024 22:30	00d 00:15:00.0	60.3	89.9	81.9	27.9	94.7	73.4	61.9	45.0	32.1	29.0
41	17/09/2024 22:45	00d 00:15:00.0	60.2	89.8	79.2	28.0	97.3	73.1	62.5	44.4	34.0	29.0
42	17/09/2024 23:00	00d 00:15:00.0	56.5	86.1	77.0	28.2	98.1	71.2	53.3	37.9	31.2	29.5
43	17/09/2024 23:15	00d 00:15:00.0	57.0	86.6	76.2	27.5	91.4	71.3	56.8	38.5	30.9	28.4
44	17/09/2024 23:30	00d 00:15:00.0	58.3	87.9	78.0	28.9	93.2	73.0	57.5	40.0	32.9	30.1
45	17/09/2024 23:45	00d 00:15:00.0	55.9	85.5	77.1	28.7	93.2	70.8	52.6	39.3	31.3	29.4
46	18/09/2024 00:00	00d 00:15:00.0	58.3	87.9	80.8	27.6	95.0	72.1	56.6	38.1	29.8	28.3
47	18/09/2024 00:15	00d 00:15:00.0	55.6	85.2	78.9	25.7	93.0	70.2	49.9	31.2	27.1	26.3
48	18/09/2024 00:30	00d 00:15:00.0	50.5	80.1	75.2	25.3	99.8	63.4	40.1	28.6	26.7	26.0
49	18/09/2024 00:45	00d 00:15:00.0	53.9	83.5	80.8	25.4	99.5	66.2	37.5	27.9	26.4	25.9
50	18/09/2024 01:00	00d 00:15:00.0	53.8	83.4	75.4	25.4	101.2	69.2	46.0	28.8	26.8	26.1
51	18/09/2024 01:15	00d 00:15:00.0	54.9	84.5	80.1	25.3	92.9	70.2	46.1	30.0	27.0	26.2
52	18/09/2024 01:30	00d 00:15:00.0	53.9	83.5	78.8	25.7	103.3	67.2	46.4	30.0	26.9	26.3
53	18/09/2024 01:45	00d 00:15:00.0	50.6	80.2	75.7	25.3	89.4	63.2	40.3	28.4	26.6	26.0
54	18/09/2024 02:00	00d 00:15:00.0	50.6	80.2	74.7	25.5	93.7	63.5	41.0	28.5	26.5	26.1
55	18/09/2024 02:15	00d 00:15:00.0	48.3	77.9	74.8	25.6	91.1	57.9	38.2	27.9	26.7	26.3
56	18/09/2024 02:30	00d 00:15:00.0	51.5	81.1	75.7	25.4	93.2	65.1	44.2	28.0	26.7	26.1
57	18/09/2024 02:45	00d 00:15:00.0	29.2	58.8	40.5	24.8	73.8	37.7	31.5	27.0	26.1	25.7
58	18/09/2024 03:00	00d 00:15:00.0	49.5	79.1	74.4	25.3	92.2	62.7	41.7	29.0	26.5	25.9
59	18/09/2024 03:15	00d 00:15:00.0	47.1	76.7	74.7	25.0	88.2	53.8	30.6	27.2	26.1	25.7
60	18/09/2024 03:30	00d 00:15:00.0	52.9	82.5	77.0	25.4	96.3	66.6	43.5	27.9	26.5	26.0
61	18/09/2024 03:45	00d 00:15:00.0	52.9	82.5	75.1	25.2	92.7	67.7	44.5	28.5	26.4	26.0
62	18/09/2024 04:00	00d 00:15:00.0	55.5	85.1	78.5	25.6	100.1	69.2	48.7	29.9	26.8	26.3

63	18/09/2024 04:15	00d 00:15:00.0	56.3	85.9	77.5	25.8	96.0	70.8	52.2	32.5	27.4	26.6
64	18/09/2024 04:30	00d 00:15:00.0	54.7	84.3	78.2	25.5	92.8	68.9	49.1	30.8	27.0	26.3
65	18/09/2024 04:45	00d 00:15:00.0	53.9	83.5	77.9	25.9	92.8	68.1	47.7	29.8	27.5	26.9
66	18/09/2024 05:00	00d 00:15:00.0	57.5	87.1	81.5	28.1	97.5	71.3	54.4	36.1	29.8	28.7
67	18/09/2024 05:15	00d 00:15:00.0	58.1	87.7	78.6	29.0	95.5	72.0	57.2	38.4	31.2	30.0
68	18/09/2024 05:30	00d 00:15:00.0	57.0	86.6	78.7	31.9	93.1	71.3	55.4	40.0	33.9	32.7
69	18/09/2024 05:45	00d 00:15:00.0	60.4	90.0	81.1	31.7	102.8	73.2	62.0	46.0	36.0	33.9
70	18/09/2024 06:00	00d 00:15:00.0	61.2	90.8	78.0	33.4	95.1	73.8	64.4	48.1	40.3	36.2
71	18/09/2024 06:15	00d 00:15:00.0	62.9	92.5	81.8	33.6	101.1	74.4	67.0	51.7	41.4	35.6
72	18/09/2024 06:30	00d 00:15:00.0	65.1	94.7	85.4	38.4	106.8	75.7	69.8	55.9	45.8	41.5
73	18/09/2024 06:45	00d 00:15:00.0	65.2	94.8	79.0	38.9	99.8	75.3	70.1	57.6	46.0	41.1
74	18/09/2024 07:00	00d 00:15:00.0	66.4	96.0	81.3	43.9	98.4	75.4	70.9	61.5	51.8	46.5
75	18/09/2024 07:15	00d 00:15:00.0	67.5	97.1	83.4	45.3	101.5	75.5	71.7	63.7	54.4	48.0
76	18/09/2024 07:30	00d 00:15:00.0	68.2	97.8	88.7	49.1	111.4	75.5	71.9	66.1	56.6	51.1
77	18/09/2024 07:45	00d 00:15:00.0	68.0	97.6	81.6	50.0	100.6	75.2	71.9	65.8	57.6	52.2
78	18/09/2024 08:00	00d 00:15:00.0	67.5	97.1	80.6	48.9	99.2	74.7	71.5	65.0	56.0	51.2
79	18/09/2024 08:15	00d 00:15:00.0	67.9	97.5	78.7	49.2	101.0	74.9	71.7	66.2	57.8	52.1
80	18/09/2024 08:30	00d 00:15:00.0	67.7	97.3	81.2	48.4	102.8	75.1	71.6	65.3	56.2	51.6
81	18/09/2024 08:45	00d 00:15:00.0	67.3	96.9	82.6	46.4	101.5	74.9	71.2	64.6	54.7	48.6
82	18/09/2024 09:00	00d 00:15:00.0	66.9	96.5	80.6	48.1	105.2	75.8	71.0	63.2	53.8	49.6
83	18/09/2024 09:15	00d 00:15:00.0	66.4	96.0	77.7	45.9	98.9	74.5	70.9	62.6	52.6	47.7
84	18/09/2024 09:30	00d 00:15:00.0	66.1	95.7	82.0	43.6	102.3	74.4	70.6	62.3	50.6	45.2
85	18/09/2024 09:45	00d 00:15:00.0	65.9	95.5	77.6	46.3	99.3	74.0	70.2	62.3	51.2	47.5
86	18/09/2024 10:00	00d 00:15:00.0	66.7	96.3	82.9	48.8	102.1	75.4	70.8	62.8	53.8	50.0
87	18/09/2024 10:15	00d 00:15:00.0	65.9	95.5	78.5	47.8	99.8	74.4	70.3	61.9	53.6	50.4
88	18/09/2024 10:30	00d 00:15:00.0	66.5	96.1	80.9	51.2	101.9	75.5	70.6	63.0	54.2	52.1
89	18/09/2024 10:45	00d 00:15:00.0	66.6	96.2	85.0	50.5	101.2	75.0	70.5	63.1	55.1	53.0
90	18/09/2024 11:00	00d 00:15:00.0	65.7	95.3	76.5	51.0	106.9	74.2	70.3	61.1	54.9	52.3
91	18/09/2024 11:15	00d 00:15:00.0	66.0	95.6	81.8	50.8	102.1	74.7	70.3	61.9	54.1	52.3
92	18/09/2024 11:30	00d 00:15:00.0	65.9	95.5	80.3	51.6	100.5	73.9	70.4	62.1	55.2	52.7
93	18/09/2024 11:45	00d 00:15:00.0	66.2	95.8	86.3	51.9	103.3	74.6	70.4	62.2	55.6	53.0
94	18/09/2024 12:00	00d 00:15:00.0	66.5	96.1	80.9	51.9	104.0	74.4	70.8	62.9	56.0	53.0
95	18/09/2024 12:15	00d 00:15:00.0	66.2	95.8	79.7	50.7	102.4	74.6	70.5	62.1	55.1	52.1
96	18/09/2024 12:30	00d 00:09:38.6	66.0	93.6	82.3	51.1	99.5	74.8	70.3	61.2	53.9	52.1

LT2

	Start Time	Measurement Time	LAeq	LAE	LAmax	LAmin	Ly	LA5	LA10	LA50	LA90	LA99
1	17/09/2024 12:45	00d 00:15:00.0	45.3	74.9	52.9	40.6	100.0	47.5	47.0	45.1	43.2	41.5
2	17/09/2024 13:00	00d 00:15:00.0	45.0	74.6	55.9	40.5	96.8	47.2	46.5	44.8	43.2	41.5
3	17/09/2024 13:15	00d 00:15:00.0	45.4	75.0	56.2	40.6	97.6	47.7	47.0	45.0	43.4	41.6
4	17/09/2024 13:30	00d 00:15:00.0	46.1	75.7	57.9	39.8	99.1	49.4	48.1	45.4	43.1	41.1
5	17/09/2024 13:45	00d 00:15:00.0	45.8	75.4	55.0	40.5	93.5	48.2	47.4	45.5	43.6	42.2
6	17/09/2024 14:00	00d 00:15:00.0	45.5	75.1	59.2	40.0	98.1	48.0	47.3	45.1	43.3	41.7
7	17/09/2024 14:15	00d 00:15:00.0	45.0	74.6	51.3	38.4	96.3	47.7	46.9	44.6	42.4	40.2
8	17/09/2024 14:30	00d 00:15:00.0	45.4	75.0	56.8	39.7	101.4	47.9	47.1	45.0	42.9	41.6
9	17/09/2024 14:45	00d 00:15:00.0	46.0	75.6	61.4	40.7	97.8	48.3	47.3	45.1	43.1	41.7
10	17/09/2024 15:00	00d 00:15:00.0	46.0	75.6	55.2	41.0	97.5	48.1	47.5	45.7	44.0	42.6
11	17/09/2024 15:15	00d 00:15:00.0	45.3	74.9	51.6	39.9	99.6	47.5	47.1	45.1	43.0	41.0
12	17/09/2024 15:30	00d 00:15:00.0	46.2	75.8	59.0	38.3	97.5	49.5	47.9	45.1	43.2	41.0
13	17/09/2024 15:45	00d 00:15:00.0	45.4	75.0	52.5	40.2	96.6	48.0	47.3	45.1	42.5	41.2
14	17/09/2024 16:00	00d 00:15:00.0	46.6	76.2	56.9	41.2	96.9	49.9	48.6	45.9	44.0	42.9
15	17/09/2024 16:15	00d 00:15:00.0	46.5	76.1	55.5	41.8	97.5	49.8	48.6	45.8	44.1	42.8
16	17/09/2024 16:30	00d 00:15:00.0	46.0	75.6	52.9	41.4	95.9	48.4	47.8	45.7	43.9	42.4
17	17/09/2024 16:45	00d 00:15:00.0	46.0	75.6	53.5	39.8	100.8	48.2	47.7	45.9	43.3	41.6
18	17/09/2024 17:00	00d 00:15:00.0	47.2	76.8	68.7	41.4	96.7	49.7	48.9	46.2	43.9	42.7
19	17/09/2024 17:15	00d 00:15:00.0	47.1	76.7	59.0	40.2	97.3	50.2	48.7	46.2	44.2	42.2
20	17/09/2024 17:30	00d 00:15:00.0	47.9	77.5	62.7	42.4	102.0	50.6	49.4	47.2	45.1	43.3
21	17/09/2024 17:45	00d 00:15:00.0	46.7	76.3	53.8	42.8	100.4	48.7	48.1	46.5	44.8	43.7
22	17/09/2024 18:00	00d 00:15:00.0	46.7	76.3	58.2	41.0	96.7	49.5	48.5	46.3	44.1	42.3
23	17/09/2024 18:15	00d 00:15:00.0	46.6	76.2	65.5	38.9	93.3	49.7	48.7	45.7	42.9	40.6
24	17/09/2024 18:30	00d 00:15:00.0	45.9	75.5	57.4	37.7	90.8	49.6	48.4	45.2	41.7	39.3
25	17/09/2024 18:45	00d 00:15:00.0	45.4	75.0	53.1	38.3	85.7	48.9	47.9	44.8	41.6	39.2
26	17/09/2024 19:00	00d 00:15:00.0	45.3	74.9	54.7	36.4	87.6	48.3	47.7	44.9	41.1	38.9
27	17/09/2024 19:15	00d 00:15:00.0	44.7	74.3	52.4	38.3	85.9	47.5	46.7	44.3	41.7	39.3
28	17/09/2024 19:30	00d 00:15:00.0	45.6	75.2	60.6	37.1	89.7	49.1	47.5	44.4	41.5	39.2
29	17/09/2024 19:45	00d 00:15:00.0	44.8	74.4	56.5	35.6	92.6	48.4	47.5	44.1	40.7	38.0
30	17/09/2024 20:00	00d 00:15:00.0	44.7	74.3	55.0	33.2	96.8	48.8	47.6	43.6	38.8	35.0
31	17/09/2024 20:15	00d 00:15:00.0	57.2	86.8	81.0	31.9	110.8	51.7	47.9	42.2	38.4	36.0
32	17/09/2024 20:30	00d 00:15:00.0	43.4	73.0	54.3	31.4	93.2	47.7	46.4	42.1	38.2	33.5
33	17/09/2024 20:45	00d 00:15:00.0	42.5	72.1	54.6	35.0	97.0	46.5	44.9	41.4	38.0	36.1
34	17/09/2024 21:00	00d 00:15:00.0	41.7	71.3	55.6	32.0	95.6	45.4	44.3	40.7	35.0	33.1
35	17/09/2024 21:15	00d 00:15:00.0	44.2	73.8	64.8	31.2	94.3	48.7	47.0	41.1	35.7	32.4
36	17/09/2024 21:30	00d 00:15:00.0	40.9	70.5	58.1	29.2	91.3	46.0	44.1	38.3	32.5	30.4
37	17/09/2024 21:45	00d 00:15:00.0	41.3	70.9	57.5	30.3	84.2	45.9	44.3	39.4	33.7	31.7
38	17/09/2024 22:00	00d 00:15:00.0	41.5	71.1	53.8	30.9	87.5	46.3	44.9	39.8	33.9	31.8
39	17/09/2024 22:15	00d 00:15:00.0	40.1	69.7	55.1	28.3	88.7	45.1	43.6	37.8	31.6	29.2
40	17/09/2024 22:30	00d 00:15:00.0	39.3	68.9	51.9	24.9	76.4	45.2	43.4	36.0	29.2	26.0
41	17/09/2024 22:45	00d 00:15:00.0	39.0	68.6	50.3	22.7	81.9	44.8	43.3	34.8	28.0	23.7
42	17/09/2024 23:00	00d 00:15:00.0	38.7	68.3	51.6	25.3	81.3	44.2	42.9	35.0	28.9	26.3
43	17/09/2024 23:15	00d 00:15:00.0	38.1	67.7	52.4	24.4	92.7	43.6	42.1	34.6	27.9	25.8
44	17/09/2024 23:30	00d 00:15:00.0	38.5	68.1	52.2	24.0	85.0	45.1	43.0	32.5	27.3	25.3
45	17/09/2024 23:45	00d 00:15:00.0	38.9	68.5	54.9	24.6	81.4	45.4	43.4	31.7	27.5	25.9
46	18/09/2024 00:00	00d 00:15:00.0	38.9	68.5	57.5	23.2	81.3	44.7	42.3	33.1	25.1	23.7
47	18/09/2024 00:15	00d 00:15:00.0	35.9	65.5	51.3	20.9	95.0	43.0	40.7	28.9	22.5	21.5
48	18/09/2024 00:30	00d 00:15:00.0	29.7	59.3	46.2	20.6	88.3	35.1	31.1	25.5	22.4	21.3
49	18/09/2024 00:45	00d 00:15:00.0	34.8	64.4	52.5	19.5	80.6	41.8	32.7	24.3	21.1	20.2
50	18/09/2024 01:00	00d 00:15:00.0	33.6	63.2	51.9	20.4	81.9	40.9	36.3	26.2	22.6	21.3
51	18/09/2024 01:15	00d 00:15:00.0	34.6	64.2	53.7	19.7	74.8	41.5	37.5	25.4	22.3	21.0
52	18/09/2024 01:30	00d 00:15:00.0	32.6	62.2	50.1	20.1	81.9	39.4	35.5	26.4	22.0	20.9
53	18/09/2024 01:45	00d 00:15:00.0	33.3	62.9	53.1	20.3	81.1	40.1	36.1	25.2	22.4	21.1
54	18/09/2024 02:00	00d 00:15:00.0	30.5	60.1	50.4	19.7	73.1	37.5	32.6	23.2	21.1	20.3
55	18/09/2024 02:15	00d 00:15:00.0	28.3	57.9	45.6	20.2	76.0	33.8	28.6	22.6	21.3	20.7
56	18/09/2024 02:30	00d 00:15:00.0	30.2	59.8	47.7	19.3	75.8	36.5	31.8	23.0	21.1	20.2
57	18/09/2024 02:45	00d 00:15:00.0	29.2	58.8	48.2	19.3	72.0	32.4	28.7	22.9	20.8	20.0
58	18/09/2024 03:00	00d 00:15:00.0	32.1	61.7	50.9	19.5	75.6	39.2	35.5	23.6	21.2	20.2
59	18/09/2024 03:15	00d 00:15:00.0	23.0	52.6	36.3	18.5	86.3	27.0	24.7	21.7	20.3	19.5
60	18/09/2024 03:30	00d 00:15:00.0	34.6	64.2	54.2	20.3	76.9	41.9	37.4	24.0	21.7	20.8
61	18/09/2024 03:45	00d 00:15:00.0	33.8	63.4	54.3	19.6	74.6	40.1	36.3	23.6	21.2	20.3
62	18/09/2024 04:00	00d 00:15:00.0	33.6	63.2	53.9	20.0	76.3	40.1	35.4	25.1	21.7	20.8
63	18/09/2024 04:15	00d 00:15:00.0	37.9	67.5	55.2	20.5	76.1	44.8	41.1	27.2	23.2	21.5
64	18/09/2024 04:30	00d 00:15:00.0	35.4	65.0	52.1	20.7	74.0	42.7	38.7	26.4	22.5	21.5
65	18/09/2024 04:45	00d 00:15:00.0	35.1	64.7	51.5	22.3	75.6	42.2	39.6	26.9	23.9	23.1
66	18/09/2024 05:00	00d 00:15:00.0	36.9	66.5	52.8	22.6	74.5	43.6	40.7	30.2	25.4	24.0
67	18/09/2024 05:15	00d 00:15:00.0	37.1	66.7	52.0	23.9	87.6	43.6	41.2	31.7	27.3	25.0
68	18/09/2024 05:30	00d 00:15:00.0	37.2	66.8	48.1	28.0	91.0	42.9	40.9	34.3	30.5	29.0
69	18/09/2024 05:45	00d 00:15:00.0	40.1	69.7	51.9	29.8	83.2	45.7	43.8	37.5	32.6	30.9

70	18/09/2024 06:00	00d 00:15:00.0	42.2	71.8	55.3	32.1	83.4	47.1	45.7	40.0	35.5	33.3
71	18/09/2024 06:15	00d 00:15:00.0	42.8	72.4	55.0	30.7	79.6	47.5	46.2	41.1	36.3	32.9
72	18/09/2024 06:30	00d 00:15:00.0	44.5	74.1	53.7	35.5	80.1	48.1	47.1	43.9	38.8	36.8
73	18/09/2024 06:45	00d 00:15:00.0	45.1	74.7	55.5	36.7	83.2	48.3	47.5	44.7	40.4	38.2
74	18/09/2024 07:00	00d 00:15:00.0	45.7	75.3	54.5	35.9	86.3	48.4	47.9	45.5	42.2	39.2
75	18/09/2024 07:15	00d 00:15:00.0	46.6	76.2	59.2	40.7	88.2	49.2	48.4	46.2	44.3	42.2
76	18/09/2024 07:30	00d 00:15:00.0	48.2	77.8	59.1	42.0	81.2	51.1	50.0	47.5	45.1	43.2
77	18/09/2024 07:45	00d 00:15:00.0	48.1	77.7	59.3	41.3	83.6	50.8	49.7	47.6	45.9	43.6
78	18/09/2024 08:00	00d 00:15:00.0	47.1	76.7	56.2	41.9	87.2	49.1	48.7	46.9	44.8	43.6
79	18/09/2024 08:15	00d 00:15:00.0	47.3	76.9	56.0	42.3	88.8	49.6	49.0	47.1	45.2	43.4
80	18/09/2024 08:30	00d 00:15:00.0	46.8	76.4	55.1	41.6	91.2	49.2	48.6	46.5	44.6	43.2
81	18/09/2024 08:45	00d 00:15:00.0	47.1	76.7	57.3	39.8	97.3	50.3	49.2	46.5	44.0	41.6
82	18/09/2024 09:00	00d 00:15:00.0	46.2	75.8	55.8	39.7	88.3	49.5	48.4	45.4	43.2	41.2
83	18/09/2024 09:15	00d 00:15:00.0	45.6	75.2	55.1	39.3	90.7	48.2	47.7	45.3	42.8	40.9
84	18/09/2024 09:30	00d 00:15:00.0	44.5	74.1	57.2	38.2	96.4	47.0	46.5	44.2	41.4	39.3
85	18/09/2024 09:45	00d 00:15:00.0	45.7	75.3	59.0	41.2	98.5	48.3	47.2	44.9	43.1	42.0
86	18/09/2024 10:00	00d 00:15:00.0	46.3	75.9	61.8	40.8	100.2	48.9	47.5	45.1	42.9	41.8
87	18/09/2024 10:15	00d 00:15:00.0	47.4	77.0	64.8	40.8	102.6	50.9	48.7	45.9	43.8	42.2
88	18/09/2024 10:30	00d 00:15:00.0	49.1	78.7	66.8	40.6	101.5	51.2	48.0	45.5	43.8	42.7
89	18/09/2024 10:45	00d 00:15:00.0	45.4	75.0	65.1	40.2	97.2	47.9	47.1	44.7	42.9	41.7
90	18/09/2024 11:00	00d 00:15:00.0	45.8	75.4	55.3	41.4	105.7	48.6	47.8	45.2	43.2	42.2
91	18/09/2024 11:15	00d 00:15:00.0	47.9	77.5	69.0	40.6	101.0	53.4	50.5	45.0	42.9	41.9
92	18/09/2024 11:30	00d 00:15:00.0	46.0	75.6	55.5	41.6	100.8	48.2	47.7	45.7	44.1	42.6
93	18/09/2024 11:45	00d 00:15:00.0	46.7	76.3	62.2	41.5	103.4	49.3	48.4	46.2	44.3	42.7
94	18/09/2024 12:00	00d 00:15:00.0	48.9	78.5	59.7	43.3	110.2	52.2	51.1	48.1	46.3	45.0
95	18/09/2024 12:15	00d 00:15:00.0	47.1	76.7	60.5	41.6	103.3	50.4	49.1	46.2	44.3	43.3
96	18/09/2024 12:30	00d 00:14:20.5	48.3	77.7	74.0	41.7	105.1	51.0	49.5	46.6	44.5	42.9

Appendix C
NOISE MONITORING LOCATION PLAN

ML2

ML1

Key

- Basemap
- Noise Monitoring Location
- Redline Boundary
- Buildings

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R Calvert	PL	PL

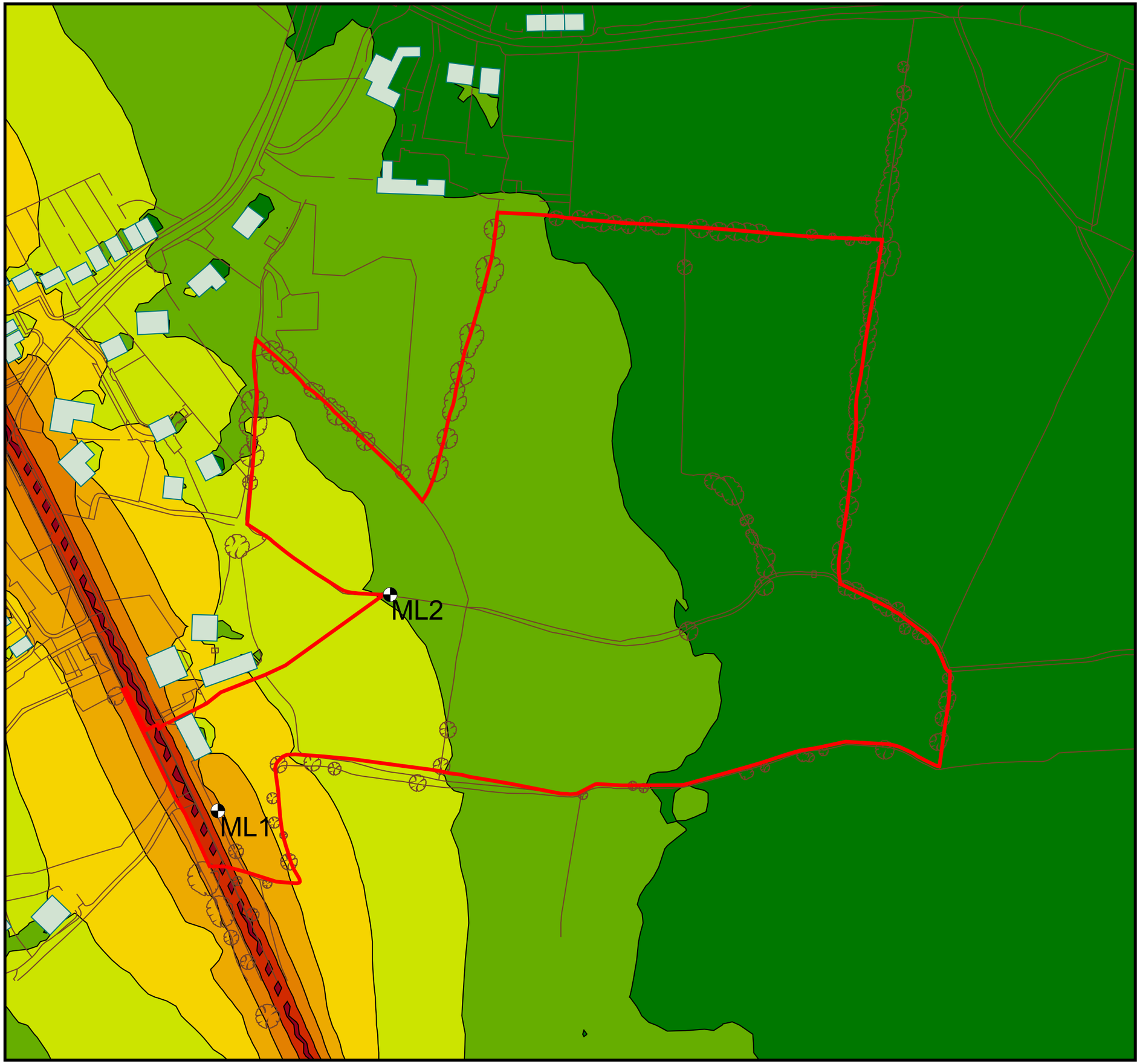
Client:
Catesby Estates Limited

Project:
30465 - Haywards Heath

DRG No:
30465-001

Title:
Appendix C - Noise Monitoring Location Plan

Appendix D
DAYTIME – WITHOUT DEVELOPMENT



Key

- Basemap
- Monitoring Location
- Redline Boundary
- Existing Building

Daytime Noise Levels (dB $L_{Aeq, 1\ hr}$)

	<= 45
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	<= 70
70 <	<= 75
75 <	<= 80
80 <	

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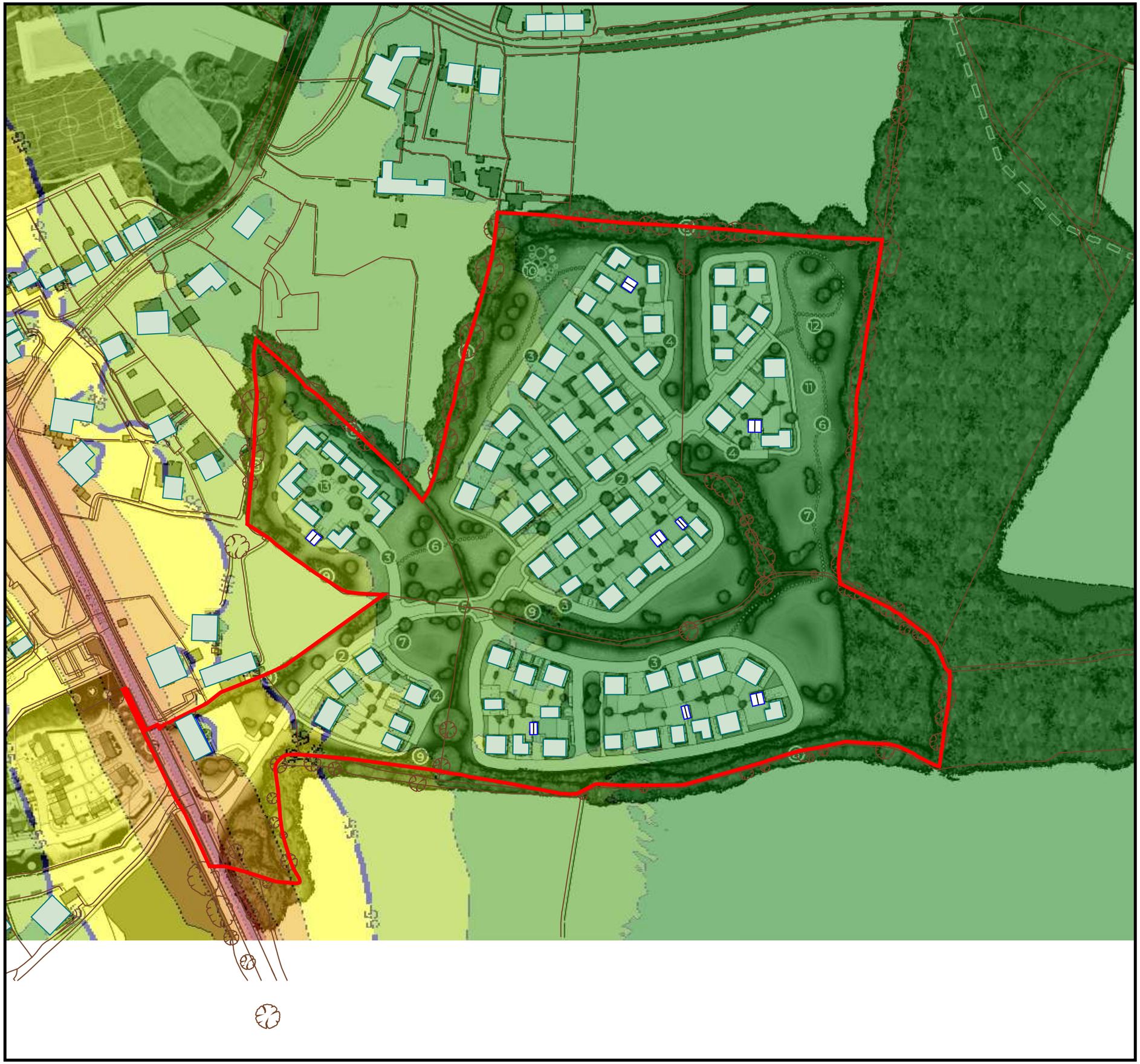
30465-002

Title:
Appendix D - Daytime – No Development

Appendix E
DAYTIME - NOISE IN GARDENS – WITH DEVELOPMENT



Key

- Basemap
- Redline Boundary
- Building
- 55dB(A) Limit line

Daytime Noise Levels (dB $L_{Aeq, 1\ hr}$)

	<= 45
45 <	<= 50
50 <	<= 55
55 <	<= 60
60 <	<= 65
65 <	<= 70
70 <	<= 75
75 <	<= 80
80 <	

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DRG No:
30465-003

Title:
Appendix E - Daytime - Noise in Gardens with Development

Appendix F
DAYTIME - FACADE NOISE LEVELS

Key

- Basemap
- Redline Boundary
- Building
- Road

Daytime Noise Levels (dB $L_{Aeq, 16\ hr}$)

	<= 48
48 <	<= 53
53 <	

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Project:
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DRG No:
30465-004

Title:
Appendix F - Daytime - Facade Noise Levels

Appendix G
NIGHT-TIME – L_{Aeq} FACADE NOISE LEVELS

Key

- Basemap
- Redline Boundary
- Building
- Road

Night-time Noise Levels (dB $L_{Aeq,1hr}$)

	<= 43
43 <	<= 48
48 <	

Notes

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Project:
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Title:
Appendix G - Night-Time – LAeq Facade Noise Levels

Appendix H

NIGHT-TIME – $L_{AF,Max}$ FACADE NOISE LEVELS

Key

- Basemap
- Redline Boundary
- Building
- Road

Night-time Noise Levels (dB $L_{Af,Max}$)

	<= 58
58 <	<= 63
63 <	

Notes

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Client:
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Project:
30465 - Haywards Heath

DRG No:
30465-006

Title:
Appendix H - Night-Time – LAf,Max Facade Noise Levels

Appendix I
LIVING ROOM MITIGATION REQUIREMENTS

Key

- Basemap
- Redline Boundary
- Building
- Road

Mitigation Measure

- Facade Treatment 1
- Facade Treatment 2
- Facade Treatment 3

Notes

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Client:
Catesby Estates Limited

Project:
30465 - Haywards Heath

DRG No:
30465-007

Title:
Appendix I - Living Room Mitigation Requirements

Appendix J
BEDROOM MITIGATION REQUIREMENTS

Key

- Basemap
- Redline Boundary
- Building
- Road

Night-time Noise Levels (dB $L_{Af,Max}$)

- Facade Treatment 1
- Facade Treatment 2
- Facade Treatment 3

Notes

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Client:
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Project:
30465 - Haywards Heath

DRG No:
30465-008

Title:
Appendix J - Bedroom Mitigation Requirements

NOISE IMPACT ASSESSMENT REPORT

2024-12-16

Lunce’s Hill, Haywards Heath

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